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Noise Standards: Aircraft Type and Airworthiness Certification; and Airport Noise Compatibility Planning

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 36

[Docket No. 16231; Amdt. 36-12]

Noise Levels for Turbojet Engine Powered Airplanes and for Large Propeller-Driven Airplanes: Recommended Regulations Submitted to the FAA by the Environmental Protection Agency

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule and notice of decision.

SUMMARY: This action involves recommended regulations submitted to the FAA by the U.S. Environmental Protection Agency (EPA) under section 611 of the Federal Aviation Act of 1958, as amended (the "Act"). This amendment adds a provision expressly stating that FAA approved equivalent procedures may be used in demonstrating compliance with the required noise levels instead of certain noise certification test procedures prescribed in the rules. That provision provides flexibility in test methodology available to the applicant and the FAA in modifying certain regulatory procedures to lower the cost and complexity of compliance when equivalent results can be achieved. Additionally, this amendment clarifies and simplifies the rule language to better explain which noise level requirements apply and which "tradeoff" provisions are available to applicants for approval of modifications to certain, already certificated aircraft type designs.

This document also contains the FAA's decisions under section 611 of the Act not to prescribe further amendments to the Federal Aviation Regulations based on the remaining proposals contained in Notice No. 76-22 regarding noise certification standards. It provides a detailed explanation of the reasons for those decisions. The supporting environmental assessment provides more detailed analysis and explanation of the alternatives and their effects. This action completes the required FAA consideration of all recommended aviation noise rules received to date from the EPA. This action is being taken at this time pursuant to the order of the U.S. District Court for the District of Columbia (*State of Illinois et al.* v. *William S. Coleman*, Civil Action No. 76-1961; March 12, 1981) to publish this document by June 30, 1981.

EFFECTIVE DATE: August 1, 1981.

FOR FUTHER INFORMATION CONTACT: Mr. Richard Tedrick, Noise Policy and Regulatory Branch (AEE-110), Noise Abatement Division, Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 755-9027.

SUPPLEMENTARY INFORMATION:

Brief Regulatory History

This amendment and notice of decision completes action on a notice of proposed rule making (Notice No. 76-22) published in the **Federal Register** on October 28, 1976 (41 FR 47358), and on Supplemental Notice No. 76-22A published in the **Federal Register** on December 9, 1976 (41 FR 53807). Those notices contained numerous recommended amendments submitted by the U.S. Environmental Protection Agency (EPA) for changes in the noise certification standards which would be applicable to turbojet engine powered airplanes and to large propeller-driven airplanes. The EPA proposal incorporated and supplemented the earlier FAA proposals contained in Notice Nos. 75-37, 75-37B, and 75-37C. A Notice of Public Hearing on the EPA recommendations was published in the **Federal Register** on October 28, 1976 (41 FR 47378); the public hearing was held in Washington, D.C., on December 14, 1976.

Earlier amendments acted on several of the EPA's recommendations; those remaining are disposed of by this amendment and notice of decision. Pursuant to section 611(b) of the Federal Aviation Act of 1958, as amended (the "Act"), the FAA has consulted with the Secretary of Transportation and the Administrator of the EPA concerning this amendment and notice of decision.

Synopsis

A. Description of the Amendment

This amendment clarifies two major portions of Appendix C of Part 36. First, it amends § 36.203 to adopt in part, the EPA's proposal to expressly authorize FAA approval of applicant proposed equivalent procedures for demonstrating compliance with Appendix C. Corresponding authority already exists for Appendices A and B under §§ 36.101 and 36.103, respectively.

Second, the acoustical change provisions (§ 36.7) adopted in Amendments 36-7 and 36-8 are amended (based on Notice No. 76-22 proposals) to clarify which noise level requirements apply and which tradeoff provisions under § C36.5 are applicable to approvals of type design changes to certain aircraft that might increase noise levels. Specifically, this amendment explicitly states the limitations on the use of the special tradeoff provisions for certain airplanes for which application for an original type certificate was made prior to the effective date of Part 36 (December 1, 1969). This amendment also corrects a typographical error in § 36.7(e)(2)(i) which occurred in the adoption of Amendment 36-8. In so doing, the FAA clarifies a cross-reference to correctly identify the noise level limits that are applicable to acoustical changes to certain Stage 3 airplanes that are not required to be Stage 3 airplanes before (or after) the acoustical change in type design.

B. Regulatory Analysis

Because of the potential economic impacts of the various EPA proposals that were considered, the FAA carefully examined the costs of each. This evaluation examined the various alternatives that the FAA considered in preparing this rule and decisions, considered the economic and program implications of the alternatives, and explained the FAA's reasons for making the choices resulting in the final rule and decisions. Because the economic and environmental analyses so closely parallel each other, both are included in the Finding of No Significant Impact.

C. Environmental Analysis

The FAA has determined that this action does not constitute a major Federal action significantly affecting the quality of the human environment. Accordingly, a Finding of No Significant Impact has been prepared. A copy of this finding has been placed in the docket for this rulemaking and is available for public inspection.

D. Background

The adoption of FAR Part 36 in 1969 prohibited the further escalation of aircraft noise levels of subsonic civil tubojet and transport category airplanes and required new airplane types to be markedly quieter than the generation of turbojets that were developed in the late 1950's and early 1960's. Since the adoption of Part 36, the FAA has issued a number of notices proposing amendments to its provisions and, subsequent to notice and public procedure, has adopted those amendments which have been found to conform to the statutory authority and responsibility conferred upon the FAA by the Congress. Those amendments have increased the protection of the public health and welfare by providing the control and abatement of aircraft noise and sonic boom under section 611 of the Act.

In considering amendments under the authority of section 611 of the Act, factors which the FAA must consider include the following:

1. Available data relating to aircraft noise, including the results of research, development, testing, and related evaluation activities.

2. The views and positions of other Federal, State, and interstate agencies.

3. Whether the proposed regulations are consistent with the highest degree of safety in air commerce and air transportation in the public interest.

4. Whether proposed regulations are—

a. Economically reasonable;

b. Technologically practicable; and

c. Appropriate for the particular types of aircraft, aircraft engines, appliance or certificates to which they would apply.

5. The extent to which the proposed regulations contribute to providing protection to the public health and welfare by carrying out the purpose of section 611 of the Act.

The overall environmental impacts of the proposed regulations (including environmental factors other than noise) must be assessed in accordance with the National Environmental Policy Act of 1969, and implementing Federal guidelines and directives.

Further, in exercising the authority under the Act, section 1102 requires the Administrator to do so "* * * consistently with any obligations assumed by the United States in any treaty, convention, or agreement that may be in force between the United States and any foreign country * * *"

Thus, in furtherance of its aircraft noise policy and its responsibility to issue appropriate rules for the control and abatement of aircraft noise and sonic boom, the FAA has adopted amendments to the Federal Aviation Regulations (FARs).

E. Regulatory History

On October 1, 1976, the EPA submitted to the FAA its recommended regulation regarding noise level limits and acoustical change requirements for "turbojet powered airplanes" and "large propeller-driven airplanes," pursuant to section 611(c)(1) of the Federal Aviation Act of 1958, as amended by the Noise Control Act of 1972 (Public Law 92–574). Section 611(c)(1) of the Act, provides that the EPA shall submit to the FAA proposed regulations to provide such control and abatement of aircraft noise and sonic boom as the EPA determines is necessary to protect the public health and welfare. That section also provides that the FAA "shall consider such proposed regulations submitted by EPA under this paragraph and shall, within thirty days of its submission to the FAA, publish the proposed regulations in a notice of proposed rule making." Accordingly, pursuant to that provision of law, the FAA published Notice No. 76–22 entitled (as corrected) "Proposed Regulations Submitted to the FAA by the Evironmental Protection Agency: Noise Levels for Turbojet Engine Powered Airplanes and for Large Propeller-Driven Airplanes" (41 FR 47358, October 28, 1976; and 41 FR 53807, December 9, 1976). A second correction submitted by the EPA (41 FR 53807; December 9, 1976) republished proposed § C36.5(a) to include the EPA's recommended text for paragraph (a)(2) which had been omitted in the original submission to the FAA.

Pursuant to a notice also published on October 28, 1976 (41 FR 47378), the FAA held a public hearing in Washington, D.C., on December 14, 1976, regarding the proposals contained in Notice No. 76–22 (as corrected). The period for submitting written comments to the regulatory docket for the EPA recommended regulation closed on February 28, 1977.

Prior to adopting Amendment 36–7 (42 FR 12360; March 3, 1977) the FAA conducted a comparative review of the EPA proposal and the draft provisions of that amendment to determine whether issuance of the amendment at that time would in any manner commit the FAA to a course of action that would conflict with an objective consideration of the EPA proposals under the procedures prescribed in section 611(c) of the Act, or would in other ways impair its ability to discharge its responsibilities under the Noise Control Act of 1972. That review focused on those areas in which the EPA proposals differed from Amendment 36–7 with respect to the resulting protection afforded to the public health and welfare from the noise of airplanes to which each would apply. The review also concerned the EPA's analysis and stated views regarding the specific proposals contained in Notice Nos. 75–37, 75–37A, and 75–37B.

Based on that review, the FAA concluded in adopting Amendment 36–7 that there was no provision of the EPA recommendations submitted on October 1, 1976, or November 29, 1976, that could not be adopted later, as a supplement to that amendment, if adoption was shown to be appropriate under the procedures and standards of section 611 of the Act. Furthermore, the FAA by issuing that amendment in no way limited its ability or intent to respond fully to the respective EPA proposals in a manner contemplated by section 611(c) of the Act.

In addition to preserving FAA's ability to take any action that may be shown to be proper under the section 611(c) process, Amendment 36–7 reflected FAA's awareness of the need for timely action to protect the public from the noise of the affected airplanes. That amendment, thus, established immediate standards for the manufacturers of those airplanes, consistent with the direction in section 611(b) that the public be protected from aircraft noise without waiting to develop a full response to the EPA submissions.

The FAA had similar concerns when it adopted the Amendment 36–8 modifications (43 FR 8722, March 2, 1978) to the noise level and acoustical change provisions of Part 36. That amendment was also based on Notice Nos. 75–37, 75–37B, and 75–37C. In adopting Amendment 36–8, the FAA noted that the EPA proposals "incorporated and supplemented" those earlier FAA notices and again concluded that there is no provision that could not be adopted later, if adoption were appropriate under the procedure and standards of section 611 of the Act. Finally, the FAA stated that Amendment 36–8 may be later supplemented by further amendments on the basis of the remaining EPA proposals and the Comments received in response to those proposals.

Need for This Action

Under the Federal Aviation Act of 1958, as amended by Pub. L. 90–411 and the Noise Control Act of 1972 (Pub. L. 92–574), the FAA is responsible for aircraft noise regulation and, subject to the constraints of section 611 of the Act, is directed to regulate for purposes of affording present and future relief and protection to the public health and welfare by control and abatement of noise. In so doing, the FAA must consider whether those noise abatement regulations are consistent with the highest degree of safety in air commerce in the public interest and are economically reasonable, technologically practicable, and appropriate to the type of aircraft. As previously stated, the FAA adopted Part 36 of the Federal Aviation Regulations (FARs) in 1969, pursuant to section 611 of the Act. Part 36 specifies noise limits, based on gross weight, measured at three specified points under the takeoff flight path, on the sideline from the extended centerline of the runway, and under the approach flight path. The noise level at each of these points is measured as an effective preceived noise level (EPNL), in units of EPNdB.

Part 36 halted the escalation of aircraft noise at its source. The relatively low noise levels achieved by the current generation of widebody jets with high bypass ratio engines—the Boeing 747, Lockheed L-1011, and McDonnell-Douglas DC-10—serve to demonstrate the effectiveness of the regulation. Even so, aircraft noise remains a significant annoyance for six to seven million persons in the United States. The problem is particularly serious at several major airports. As air travel increases, noise may become a significant problem for residents living near many of the airports across the nation. The critical conclusion coming out of the many years of FAA review of this problem is that, from the standpoint of the preservation of a strong airport/air transportation system, continued Federal action is required to provide effective aircraft noise reduction at its source.

However, the FAA also recognizes that the usefulness of Part 36 can be enhanced by improving the clarity of the regulation. This is particularly important in those sections dealing with the flexibility available to applicants for modifying flight, test, and other procedures to best suit their needs and capabilities for particular noise tests. Similarly, the FAA has determined that there is a need to clarify which "tradeoff" noise level requirements apply and what provision is available to applicants for approval of modifications to certain, already certificated aircraft types.

In adopting acoustical change requirements for Stage 3 airplanes that are not required to be Stage 3 airplanes, the FAA (as discussed in the preamble) intended to permit an election—either to remain a Stage 3 airplane after the design change or, like other airplanes of older design types not required to meet Stage 3 noise levels, to comply with the acoustical change requirements (also being issued at that time) for Stage 2 airplanes with high bypass ratio engines. In issuing Amendment 36-8, unfortunately the reference in the rule to the new noise level provision (which distinguishes airplanes with high bypass ratio engines from other airplanes) was not also changed to effect that result. This amendment makes the necessary correction to avoid the unintended and unreasonable effect of that error.

In originally proposing Part 36 (34 FR 453; January 11, 1969), the FAA explained that the purpose of the tradeoff provisions is "to reflect the fact that total noise exposure is cumulative and that certain limited exceedances at certain measuring points are therefore acceptable if compensated by noise reductions at other measuring points." Tradeoffs, then, provide needed flexibility to aircraft manufacturers and modifiers to employ the most appropriate and most cost-effective technologies to their airplanes. During the many amendments to Part 36 since its original promulgation in 1969, the tradeoff provisions have been kept as an important and integral part of the noise certification process. However, in light of Notices Nos. 75-37 and 75-37C and Amendments 36-7 and 36-8, the language which defines their applicability in certain situations has become cloudy. Accordingly, the FAA is using this opportunity afforded by the EPA proposal on the same subject and notices to restate the tradeoff provisions to retain their original purpose but achieve the effect contemplated by Amendment 36-8 of eliminating the further use of the special tradeoff provisions under section C36.5(c) for certain older design four-engine airplanes.

Discussion of EPA Recommendations, Comments, and the Rule

Interested persons were invited to participate in this rulemaking proceeding by submitting their written comments to the regulatory docket on or before February 28, 1977. Further opportunity was afforded interested persons in a public hearing held in Washington, D.C., on December 14, 1976. All comments received have been reviewed and duly considered in promulgating this amendment and notice of decision.

Notice No. 76-22 contained twelve suggestions for revising FAR Part 36. Those twelve proposals are:

1. Substitution of the words "large propeller driven airplanes" for the words "subsonic transport category large airplanes" in paragraph 36.1(a)(1), the applicability provision.

2. Addition of a new provision at the end of § C36.1 of Appendix C to provide that approved equivalent procedures are permitted in demonstrating compliance with the test procedures specified in Appendix C. (This proposal does *not* include equivalencies for the noise levels or reference standards or conditions also prescribed under Appendix C.)

3. Addition of a provision to permit a specific, alternative flight test procedure when the normal takeoff test procedure produces a signal to noise ratio too low for satisfactory identification and analysis of the airplane noise.

4. Substitution of a 0.25 nautical mile measuring point for the 0.35 nautical mile measuring point for sideline noise for affected airplanes powered by more than 3 engines.

5. Imposition of successively more stringent noise requirements for affected airplanes for which an application for an original type certificate is made on or after the following dates:
December 1, 1969; November 5, 1975;
January 1, 1980; January 1, 1985

6. Commitment that Part 36 be reviewed every five years or less and updated where necessary to reflect the technology options that are practicable and appropriate for the aircraft types of that time.

7. Amendment of § C36.7 to add a requirement that takeoff thrust or power be used by all aircraft from the start of takeoff roll to a height above the runway of at least 1,000 feet.

8. Addition of a requirement that data also be reported for tests conducted without power or thrust cutback if compliance with the noise limits is shown using an authorized cutback during takeoff tests.

9. Amendment of § C36.7(d) to impose speed tolerances on takeoff test conditions and limits on the correction of acoustic data for airplane speed and climb performance.

10. Amendment of § C36.9 to require use during noise certification approach (landing) tests of one flap position less than the maximum certificated for airworthiness.

11. Adoption of the FAA proposed Stage 2 and Stage 3 "acoustical change" provisions as they appeared in Notices Nos. 75-37, 75-37B, or 75-37C.

12. Amendment of various sections of Part 36 to require supersonic airplanes to meet the same test measurement and noise limit requirements as subsonic airplanes.

Thirty-one commenters submitted comments (including presentations at the hearing) in response to Notice No. 76-22. Comments were received from State and local government authorities, foreign governmental bodies and their representatives, airport operators, foreign aircraft and aircraft engine manufacturers, U.S. trade/industry associations, and an association of concerned citizens.

The issues focused on by the commenters covered those subjects outlined above. The comments on those issues included data and views on the technical aspects of the respective proposals, the stringency and economic impact of several of the proposals, conformity with international standards, adequacy of the proposed noise measurement and flight test procedures, and other miscellaneous matters.

Analysis shows that the commenters' opinions were divided on the merits of the various proposals. Aviation industry and user groups generally were in opposition, while airport operators and community and environmental groups were in favor. In the following paragraphs, each of the twelve previously defined issues contained in the EPA proposal is separately considered. Additional discussion and analysis is contained in the environmental assessment of this action.

A. Large Propeller-Driven Airplanes

The EPA proposed to amend § 36.1(a) of FAR Part 36 statement of applicability by deleting the term "subsonic transport category large airplanes" and substituting for it the term "large propeller-driven airplanes." The EPA stated that the intention of this proposal is to avoid any misunderstanding as to which propeller-driven airplanes are covered in this portion of Part 36 as distinguished from Subpart F of Part 36 which deals with the noise of propeller-driven small airplanes.

The current FAR Part 36 prescribes noise standards for:

(1) Subsonic transport category large airplanes and for subsonic turbojet powered airplanes regardless of category;

(2) Propeller-driven small airplanes, except those designed and used for agricultural aircraft operations or for dispensing firefighting materials; and

(3) Concorde airplanes.

Propeller-driven small airplanes, as currently used in the Federal Aviation Regulations, are those whose maximum certificated gross weights do not exceed 12,500 lbs. Above 12,500 lbs., transport category, propeller-driven ("Large") airplanes are generally subject to the same noise certification rules as turbojet airplanes. However, propeller-driven large airplanes certificated in other categories (for instance, those certificated in the experimental or restricted categories) are not subject to noise limits as a part of their type certification basis.

The EPA, in its preamble discussion of the proposed change in the applicability provision, stated that it "does not involve a substantive change." However, that result could not be achieved by adopting the substitute language, because it would bring additional aircraft types under the applicability of Part 36. For the most part, these additional aircraft types are certificated in those other categories because of a need for specialized operations or because of airworthiness restrictions on their operations. An example is an experimental or restricted category airplane that has been converted to relatively short range operation carrying unusually large tanks of either liquid or dry chemicals for fighting forest fires. The reasons for, and the analysis of, those exclusions were presented at the time of their proposal and adoption in Part 36.

Under section 611, the FAA is required to consider the economic and technical basis for each regulatory proposal for noise control. Specifically, the FAA's responsibilities include consideration of the economic reasonableness and technological practicability of each EPA proposal submitted to it under the Noise Control Act of 1972 even when the EPA has not provided any analysis of those considerations in its submissions to the FAA. In the absence of any supporting analysis from the EPA (or information submitted to the Docket by an interested person) the FAA has relied upon its own analysis.

No comments made at the public hearing or to the Docket addressed this issue directly. The FAA concludes that the simple change in wording proposed by the EPA would result in an unwarranted, although unintended, expansion of the applicability of the regulations to additional categories of aircraft, that the proposal has no economic or technical justification, and that the stated purpose for making it would not be its actual effect. Accordingly, it is not being adopted at this time.

B. Equivalent Procedures

The EPA recommended that a provision be added to the end of § C36.1 of Appendix C expressly stating that approved equivalent procedures are also permitted for compliance with the test procedures as specified in Appendix C. The addition of that sentence would, according to the EPA, provide flexibility for compliance with the procedures (including the takeoff and approach test conditions) prescribed in Appendix C. Appendix C of FAR Part 36 contains the noise level requirements for transport category large airplanes and turbojet powered airplanes (regardless of category) and, among other things, specifications for the noise measuring points (microphone locations).

Currently, § C36.1 requires that compliance with Appendix C must be shown with noise levels measured and evaluated as prescribed by Appendix A and Appendix B of Part 36 or under approved equivalent procedures. Such procedures (either test methodology or analytical or some combination of them) must be shown to yield the same noise levels as if the specified Part 36 test or analysis were fully performed as prescribed.

Specifically, the EPA proposed adding a sentence to the end of § C36.1 to read "Approved equivalent procedures may also be permitted for compliance with the procedures in this Appendix." Two commenters to the Docket supported the need for the flexibility inherent in this wording change. The FAA agrees the rule should be changed to provide the maximum flexibility to applicants for noise certification and to minimize the costs of such certifications. However, the amendment does not authorize equivalencies to noise level or reference standards or conditions—(such as §§ C36.1, C36.5, C36.7(b) and (c), or C36.9(b)). For consistency and to more clearly define the intent of the amendment, the amendment is being made to § 36.203 and the wording of the current rule is modified to authorize approvals of equivalents only to the flight test condition aspects of §§ C36.7 and C36.9 of Appendix C, not any other requirements of those sections or other portions of Appendix C.

C. Alternative Takeoff Test Procedure

Notice No. 76–22 proposed to amend Appendix C to prescribe a specific, alternative flight test procedure under certain conditions. The EPA recommended an alternate horizontal flyover procedure for use when the signal to noise ratio obtained under the test conditions prescribed in § C36.7 is "too small for satisfactory identification and analysis of the airplane noise." The EPA did not provide information as to what conditions should define the boundaries or threshold of such "satisfactory identification and analysis." The FAA's review of this question did not develop any relevant information either. Therefore, the wording proposed by the EPA for amending FAR Part 36 is not itself adequate to permit applicants to know when the alternate flyover procedure may be used. The wording of procedural requirements must be as explicit as possible in order to avoid misapplication or the need for consequent interpretation and clarification of the rule.

Two comments to the Docket addressed this particular proposed amendment. One commenter stated that the airplane noise may be significantly influenced by the "flow field" surrounding the airplane, and that this flow field can be different in level flight from that when taking off due to speed and altitude differences. This commenter also stated that the proposed equivalent procedure could not be

applied in cases where testing is required with both cutback and maximum thrust as also proposed by the EPA. Another commenter stated that the proposed alternative takeoff testing procedure was unnecessary and impracticable. This commenter stated that where problems exist due to low noise levels, these could be solved by the use of other, better suited, equivalent procedures. The FAA agrees with both of these comments and believes that the added level of complexity embodied in this proposed amendment is not warranted by existing or expected conditions. Moreover, the FAA concludes the problem raised by the EPA is adequately resolved under the alternative test procedures contained in § A36.11(f) adopted in Amendment 36–9. Therefore, this proposal is not being adopted.

D. Reduced Sideline Distance

The EPA recommended deleting the current sideline measuring distance of 0.35 nautical mile (nm) for affected airplanes powered by more than three turbojet engines and substituting for it the 0.25 nm distance currently used for all other turbojet engine powered airplanes.

In Amendment 36–7 (42 FR 12360; March 3, 1977), the FAA amended § 36.11 to incorporate this recommendation for airplanes attempting to show compliance with the new Stage 3 noise levels. However, for acoustical changes of Stage 1 and Stage 2 airplanes powered by more than three turbojet engines the prescribed distance remained at 0.35 nm. Since acoustical change approvals usually involve examination of relatively small incremental changes to existing noise levels of older type design aircraft, moving the sideline microphones might obscure the real magnitude of any noise level change for these airplanes. Therefore, modifying the sideline distance applicable to further measurements of already approved aircraft would add a requirement for costly retesting or, at least, reanalysis of the original data to standardize the basis for noise level comparisons. Thus, applying the proposal to acoustical changes would add to the cost of noise certification without demonstrable benefit.

Only one commenter, an airline industry group, responded to this proposal. That comment expressed a preference for the rule change previously adopted in Amendment 36–7, but provided no information on the basis for that preference.

Based on the above analysis, the FAA concludes that the change promulgated in Amendment 36–7 is adequate, should be retained, and requires no further amendment at this time.

E. Noise Levels

The most significant proposal contained in Notice No. 76–22 was for phased, systematic reductions in the noise level requirements contained in Appendix C of FAR Part 36. Under the EPA proposal, there would be five stages of aircraft noise levels, based on the date of application for a type certificate; that is, for applications filed—

a. On or before November 30, 1969;

b. December 1, 1969, through November 4, 1975;

c. November 5, 1975, through December 31, 1979;

d. January 1, 1980, through December 31, 1984; and

e. On or after January 1, 1985.

As under the current Part 36, for "Stage 1 airplanes," there would be only acoustical change noise limits for the EPA's proposed first stage. The second stage proposed by the EPA covers the present Part 36, "Stage 2 airplanes," which are subject to the noise limits contained in § C36.5(a)(2). However, the last three stages differed from Part 36 requirements at that time.

The EPA's third stage of aircraft noise certification is essentially the equivalent to the "Stage 3" requirements adopted for original type certificates in Amendment 36–7 (42 FR 12360; March 3, 1977) and for acoustical changes in Amendments 36–7 and 36–8 (43 FR 8722; March 2, 1978). As previously discussed, in adopting those amendments the FAA conducted a comparative review of the EPA proposal contained in Notice No. 76–22 and of the draft provisions of those amendments. Based on those reviews, the FAA concluded that adoption at the time of Amendments 36–7 and 36–8 essentially adopted the EPA Stage 1, 2, and 3 proposals and would in no way limit its ability or intent to respond fully to the remainder of Notice No. 76–22 in a manner contemplated by section 611(c) of the Act.

Every commenter to the Docket and at the Public Hearing commented on the EPA's proposed third stage of noise certification. State and local governments, airport proprietors and operators, and local citizens groups generally favored the proposal. Foreign governments, aircraft manufacturers, and associations of airlines opposed it in part.

A national association of local citizens groups stated that "if the FAR 36 limits do not require the noise reductions which are appropriate, not just those easy to obtain, the airport certification for noise procedures will be an exercise in futility causing more confrontation between the airports and airlines and the airport neighbors." The FAA agrees that Part 36 should require noise reductions which are appropriate. Specifically, section 611 of the Federal Aviation Act requires that the FAA shall "consider whether any proposed standard or regulation is economically reasonable, technologically practicable, and appropriate for the particular type of aircraft, aircraft engine, appliance, or certificate to which it will apply."

No data, either technical or economic, were submitted by any commenter concerning EPA's third stage noise level issue that were not also submitted to the FAA and considered by the FAA prior to the adoption of Amendments 36–7 and 36–8. Further, the FAA notes that in its preamble to Notice No. 76–22, the EPA recommended amending § C36.5 of Part 36 to incorporate the noise level standards proposed by the FAA in Notice No. 75–37 or recommended by the International Civil Aviation Organization (ICAO) in the CAN/4 report (or some compromise of the two). Since the ICAO Committee on Aircraft Noise, Meeting 4 Report (CAN/4 report) was the basis for Notice No. 75–37C, the FAA has already considered the comments received and accepted the EPA's recommendation in adopting Amendments 36–7 and 36–8. Further, a comprehensive review of the technical and economic data was made and was discussed in the preambles to those amendments.

Review of the FAA's experience with Part 36 noise certification experience since those amendments shows that those amendments continue to provide realistic, state of the art challenges in the design and development of new aircraft. Economic developments over the last few years have also shown the wisdom of the impetus given by the noise rules for the development and use of medium-to-high bypass ratio engines. These engines, being significantly more fuel efficient, are proving to be the economic salvation of this nation's commerical air transportation industry. On the basis of its analysis, the FAA has determined that no amendment to Stage 3 noise standards is required or justified at this time.

In Notice No. 76–22, the EPA discussed two classes of aircraft which it identified as "available technology airplanes" and "future technology airplanes." These were aircraft which the EPA assumed could be developed to meet their fourth and fifth stages. Since many comments were received which simultaneouly addressed the EPA's

fourth and fifth stage levels, the FAA analysis here considers these two stages together.

Most comments addressing those noise level proposals were negative. However, nine comments were received which were favorable, at least in part. One commenter referred extensively to "future technology" supporting the EPA 1980 and 1985 levels. However, no information was provided to show what form that technology would take or why it was assumed that such technology would exist. Many comments, both positive and negative, referred to noise reduction "techology" as though it were a basic commodity that is universally applicable to any noise reduction situation. This somewhat simplistic characterization suggests a lack of understanding of the enormous number of interrelated facets to noise reduction technologies and their application.

Another commenter claimed that the proposed 1980 and 1985 limits were based on a "good scientific procedure." However, this commenter did not provide information to indicate either the details of the procedure, or if in fact a scientific procedure were even involved.

Another commenter supported the proposed 1980 levels because they appeared to be "eminently attainable," but did not support the proposed 1985 levels because evidence of technological achievability in support of the levels proposed seems too scant even to provide the incentive apparently intended by such standards. Similar observations were made by another commenter who noted that, based upon currently known technology, it appears that the levels recommended for the 1980's are well within reach. With regard to 1985, the commenter felt there are more questions but that a very good foundation has been established that makes further reduction in noise levels promising. Similar comments were offered by four airport operators in apparent support of their association's position. Another commenter stated that there is no reason to doubt the EPA conclusion that the proposed levels for 1980 and 1985 met the test of technological and economical practicability. However, the EPA stated in its preamble that it had "not identified the costs, if in fact, there would be any significant costs to the manufacturers resulting from regulatory actions such as the proposed amendments to Part 36." This statement indicates candidly that the EPA had not made an economic analysis or judgment that the proposed rule was economically reasonable. Furthermore, as other comments to the Docket indicate, there was serious doubt as to the very existence now or in the future of the noise reduction technology that would lead to the EPA proposed levels, particularly those proposed for 1985. Hence, it is impossible to conclude from docketed information that the proposed levels are technologically practicable or economically reasonable.

However, the Docket contains considerable comment on the impractical nature of the proposals. Several comments were received which stated that the proposed 1980 and 1985 levels were unrealistic or unattainable for a variety of reasons. One commenter noted that the proposed levels seemed inconsistent with all of the technical advice available to the ICAO Committee on Aircraft Noise, and that they were developed from unsound statistical analysis of an inadequate data base. This same commenter stated that the proposed 1985 levels seem to be based more on anticipated technological research rather than that which is sure to be available. This same theme was voiced by five other commenters. Another comment was that the EPA data for new type design airplanes presented in the proposed rule do not support the proposed 1980 or 1985 limits. One commenter reviewed the six graphic figures presented in Notice No. 76–22 and stated that using a mean curve based on a restricted sample as an example of achievable noise levels was an unsupportable procedure. According to this commenter, this means that 50% of the sample would be above the curve or would effectively be unable to meet the noise limits defined by the mean curve. This commenter suggests that a better procedure would have been to apply a 90 or 95 percentile fit to the data. Also, this commenter stated that there should exist at least conceptual definitions of the devices that would provide the noise reductions required to meet the 1985 limits. Two other commenters provided similar testimony regarding EPA methodology for deriving the 1980 limits and the lack of information to support the proposed 1985 limits. Another commenter stated that noise reduction technology has not been developed and demonstrated for propeller-driven aircraft greater than 12,500 pounds, and concluded that current noise limits should be retained for these aircraft, inferring that the 1980 and 1985 limits lack data support for applying them to propeller-driven large aircraft.

The essence of these comments is that the EPA proposed levels are not supported by valid data or technological bases. The FAA agrees with that judgment in light of the required considerations under section 611 of the Act. The EPA's data base is not a valid means of establishing noise levels that conform to the section 611 requirements because it: (1) uses a restricted, nonrepresentative sample of airplanes to describe achievable noise levels, (2) cites unproven theory or speculation as examples of technological practicability and (3) does not provide any indication of the economic impacts of achieving those noise levels if they were required. No data or indication is given that the application of those technologies relied upon would be consistent with the highest degree of safety in air transportation. The FAA concludes that such procedures result in a more optimistic view of safe, economically achievable noise levels than if representative aircraft samples were used or if known technology were the basis of analysis. In particular, the use of only aircraft that meet current Part 36 requirements as examples of current safe technology ignores a large number of other aircraft types which must also be considered as representing current technology and economic reasonability appropriate for that type. Indeed, if these other aircraft types had been included in the sample, the resulting average noise level curves would necessarily have been considerably higher.

In deriving its proposed 1985 noise limits the EPA refers to "future technology" as meaning "the results of R&D programs now in progress which have not been verified, but the results to date indicate high potential to a reasonable degree of confidence." The FAA is aware that during the past fifteen years both government and industry have conducted extensive research into the development of practical low-noise aircraft and aircraft engine designs. Some of these designs have already been safely applied to commercially available aircraft, such as the refanned JT8D engine used on the Douglas DC–9–80 airplanes. Others, like the recently designed Boeing 757 and 767 airplanes, are in the final stages of development. However, for the most part, the economical application of new acoustic technology consists of improved component design applied item by item in the earliest stage in designing and proving new aircraft and engines which can be many years before production. In fact, the Boeing 757 and 767 airplanes are the first newly designed air carrier aircraft that have emerged since the adoption of the Stage 3 noise level requirements.

The National Aeronautics and Space Administration (NASA) has been the major source of new acoustical designs and practices. They were responsible for the development of the "refanned" engines and for "jet mixer" technology. Both have been successfully applied on a retrofit basis to quiet certain aircraft that were already produced and in service. These developments are also being employed in the newest generation of aircraft engines. The safety of their application is shown during testing and the airworthiness certification process.

NASA is also developing methods for further reducing aircraft engine noise through the use of reverse flow annular combustors, geared fans, and inverted flow nozzles. They have maintained active research into methods for absorption and attenuation of sound while it is still within the engine. These methods include specially constructed inlets which either absorb the sound or trap it inside the engine to be harmlessly dissipated.

Besides noise reduction, one of the major goals of all of this technology development has been to optimize the engine/aircraft efficiency. Nearly all of the developments cited above increase the gross fuel efficiency of the engine at the same time that they reduce noise emissions. Some also reduce gaseous exhaust emissions. However, there is more to optimizing the efficiency of an airplane than optimizing gross fuel efficiency of the engine. Other costs, such as those for initial investment and maintenance, must also be considered. So must the change in installed weight and other parameters that affect the direct operating costs of an airplane and, thus, its marketability.

As both the EPA and FAA have noted, the initial installation of optimized engines and equipment on the first certified airplane of a type almost always results in the lowest noise levels for the series of airplane models within the type; i.e., subsequent, derivative aircraft are usually noisier than the models from which they are derived. This results from the natural "growth" of an airplane design during its life of development and production. Since the cost of an airplane decreases with the number sold, to maximize the return on investment, manufacturers try to maintain the sales and production of each type by introducing small variations in the basic aircraft. Generally, these changes are intended to increase the payload or range (and sometimes speed) to make the airplane more attractive economically to prospective buyers/operators. However, these changes generally require delivery of more thrust per engine. Such thrust increases are currently garnered by "turning up the wick" on the engine (increasing temperatures and flows through the engine). While this is generally inexpensive, it has the effect of decreasing the bypass ratio of the engine and increasing the noise disproportionately with the increase of aircraft weight. This practice is the basis for both the EPA proposal and the FAA rule on "acoustical change" discussed later.

More important to this decision, the "growth" of an airplane type is another crucial issue upon which rests the EPA proposal to impose more restrictive Federal regulations on airplane noise levels. Both the FAA and EPA recognize that several aircraft optimized for both noise and efficiency at their initial introduction-into-service weights and thrusts have been certificated at or below the EPA "Stage 4" proposal. However, FAA's analysis shows that the effect of the proposal would be to severely limit the "growth" described above, as well as its reasonable economic viability. During consultation, the EPA stated that they have not concluded that their proposal would restrict the development of growth aircraft. It is in this context that the NASA studies are important, since they are directed at developing safe, economical alternative methods for re-optimizing the engine performance (including noise and fuel efficiency) each time the aircraft grows in weight, range or speed. The FAA has found no economic basis at this time for imposing by regulation this emerging technology on an already capital-intensive industry.

The EPA states in its proposal that the 1985 levels represent predicted "airframe noise floors." However, these airframe noise levels are based on assumed differences between the noise of a clean wing and a reasonably clean airframe. The FAA takes issue with the assumption of a "reasonably clean airframe" primarily because such an assumption can be untenable to the safe operation of aircraft in terminal areas where the biggest noise problems exist. High performance aircraft require the use of lift and drag producing devices for low altitude, lower speed terminal area operations. Not coincidentally, these devices also produce noise when deflected into the airstream. Additionally, the extended landing gear and associated doors and wheel wells also produce noise. The EPA has not defined a "reasonably clean airframe" in its proposal and further has not presented information which leads to the confident expectation that its predictions and assumptions regarding noise differences between a clean wing and "reasonably clean airframe" can be evaluated or substantiated.

In summary, the FAA agrees with the contention of several commenters that the EPA has proposed noise limits for 1980 and 1985 based on invalid or nonexistent data and technical bases. While section 611 permits the EPA to submit proposed regulations which in its judgment are protective of public health and welfare, that same section of the Act requires the FAA to promulgate noise regulations that are (among other things) "consistent with the highest degree of safety", "economically reasonable", "technologically practicable", and "appropriate" for the particular type of aircraft, aircraft engine, etc. to which they would apply. In this instance, the FAA concludes that the EPA proposed noise limits for 1980 and 1985 have not been demonstrated to satisfy those conditions at this time. Hence, the FAA has determined that it should not promulgate regulations based on those proposals.

F. Five Year Review

The EPA said in the preamble of Notice No. 76–22 that "to encourage the implementation of noise control technology to the maximum extent feasible, the EPA also recommends that Part 36 should be reviewed every 5 years or less and updated where necessary to reflect the technology options that are practicable and appropriate for the aircraft types at that time. The comments of all interested persons are invited in regard to the need and desirability of such a periodic quinquennial review."

Six commenters submitted views on this issue. All but one favored the proposal in some form. An aircraft manufacturers association concurred "with the desirability for a periodic review of the technology options available and appropriate for all aircraft types." However, the commenter felt that in order to pace the development of technology, the periodic reviews should occur not more often than every five years and that during that review, other technology options besides application of technology must also be considered; that manufacturers should not be expected to drop a given product line and embark on programs to implement new technology simply because that technology exists; and that the economic reasonableness of incorporating available technology must be carefully assessed prior to mandating any further reductions in regulated noise levels. The

FAA agrees with those views on periodic reviews.

A representative of a certificating authority for a foreign government simply stated that he agreed with the need for a periodic review of noise standards, with a view of increasing their severity. However, a foreign manufacturer opined that each stage of technology development requires eight to ten years to be fully applied and that more frequent review of the rules is unnecessary. There is merit to that observation although not all developments are at the same stage at any given time.

While the FAA agrees in general with the principle of periodic reviews, the needs for periodic review can be met without prescribing a specific time table in the rules. The FAA will continue its on-going evaluation of noise reduction developments and, consistent with its statutory responsibilities, will ensure appropriate rulemaking is initiated to provide adequate noise standards to protect the public health and welfare as contemplated by section 611 of the Act. In addition, FAR Part 11 contains the procedures for public petitions for rulemaking that are available to any person who believes and demonstrates that any aspect of the current noise certification or operating rules should be amended under section 611 considerations.

G. Cutback Power

The EPA suggested an amendment to § C36.7 of Appendix C of FAR Part 36. This section specifies certain take-off test conditions used during noise certification tests. The EPA urged that each airplane, regardless of the number of its engines, should be required to use take-off power or thrust from the start of the take-off roll to a height above the runway of the airport of at least 1000 ft.

Currently, § C36.7 requires that take-off power or thrust must be used from the start of take-off roll to at least the altitude above the runway as follows:

(1) For Stage 1 or Stage 2 airplanes—the following apply:

(a) For airplanes with more than three turbojet engines—700 feet (214 meters).

(b) For all other airplanes—1,000 feet (305 meters).

(2) For Stage 3 airplanes—the following apply:

(a) For airplanes with more than three turbojet engines—689 feet (210 meters).

(b) For airplanes with three turbojet engines—853 feet (260 meters).

(c) For airplanes with fewer than three turbojet engines—984 feet (300 meters).

(d) For airplanes not powered by turbojet engines—1,000 feet (305 meters).

Upon reaching the altitude specified above, for consistency with airworthiness requirements, the rules require that the power or thrust may not be reduced below that needed to maintain level flight with one engine inoperative, or to maintain a four percent climb gradient, whichever power or thrust is greater.

The rationale provided by the EPA for this proposal is that "FAA noise certification tests show that it is both practicable and reasonable, as well as safer and less noise polluting." However, this statement is not entirely accurate. FAA noise certification test procedures are not a basis for and have not been used to determine the safety of any operational procedure. Further, it has been found that the presently authorized procedure which allows cutback for example, above 700 feet for four engine aircraft does not necessarily result in more noise pollution than would be obtained if higher power settings were used until 1000 feet was reached. In fact, determination of the least "noise polluting" cutback for any specific airport is dependent upon where the community is sited with respect to the end of the runway, the type of airplane involved, aircraft weight and other actual operating conditions. Also, the minimum cutback altitudes are reflected in the noise level limits and any change in them would require corresponding changes in those limits or reconsideration of those limits under the factors listed under section 611 to determine their effect. However, the EPA did not state that it contemplated either as part of its recommendation.

The EPA further states that it appears that the current FAR Part 36 cutback procedure "has not been used to any significant extent in normal air carrier operations." This statement is not accurate in its implications because FAR Part 36 does not contain and is not intended to provide, an operational cutback procedure. It prescribes only minimum altitudes below which cutback may not be used during noise tests and the minimum, airworthiness based thrust that may be used during the test. Nothing in Part 36 or other Federal Aviation Regulation requires air carriers or other operators to use thrust cutback in service nor do Part 36 noise test conditions apply to in-service operations. While the FAA assists in the development of safe and viable noise reductions available around airports through the judicious choice and application of operational techniques, it does not conclude that those operational matters are, or should be, an integral part of a required noise certification process. They are better handled through other FAA programs. While offering no information as to the basis of their opinions, two commenters to the Docket simply expressed negative views about the proposal.

It is the conclusion of the FAA that this EPA proposed amendment serves no useful purpose in achieving the objectives of section 611 of the Act and, further, has not been shown to provide any demonstrable health and welfare benefit were it adopted in accordance with a proper section 611 analysis.

H. Mandatory Data Reports

The EPA considers the noise produced by an airplane without power or thrust reduction important for use in analyzing community noise impact. For that reason, the EPA recommended adding a provision to paragraph (c) of § C36.7 requiring that, if compliance with Part 36 noise levels is shown with a power or thrust reduction (cutback), additional tests without power or thrust reduction must be conducted and the noise levels achieved under those tests reported for informational purposes.

Comments similar to those in the preceding section were offered regarding this part of the EPA proposed amendment. The intent of this proposal appears to be to determine "worst case" noise situations and a basis for analytical comparisons, even though the certificated noise levels may be based on tests with power on thrust reductions.

As suggested earlier, most people are aware that aircraft are capable of producing high noise levels. No apparent need exists to further reiterate this fact. The EPA states that the noise data obtained by flying aircraft without power or thrust reduction is important for use in "analyzing community noise impact." However, no information is given in the proposal to support that assertion or to explain how these data would be used in analyzing community noise impact. In the absence of any concrete, specific objective for that amendment, there appears to be little value to actual noise reduction in requiring additional expensive testing to produce that information or data. Since the EPA has not identified a specific need for the data to be obtained under this proposed amendment and since the FAA has been unable to find a meaningful use for the data, it is concluded that the economic burden that would be placed on applicants to provide these data would not provide a public benefit. One commenter noted that noise certification testing is the most expensive aspect of pre-service

flight tests and implied that the additional testing required by the proposal rule is unnecessary. Another commenter stated that the proposed procedure was unrelated to certification and therefore would make no contribution to the purposes of Part 36. The FAA agrees. The FAA concludes, therefore, that this proposal is of no known value and since it would provide no demonstrable health and welfare benefit should not be adopted.

I. Takeoff Test Speed

Notice No. 76–22 recommended requiring that a minimum speed of V_2 plus 10 knots or the all engines operating speed at 35 feet (for turbojet engine powered airplanes) or 50 feet (for reciprocating engine powered airplanes), whichever speed is greater, must be attained by all airplanes as soon as practicable after liftoff. That speed would then be maintained throughout the take-off noise test within tolerance speeds of plus or minus 3 knots and the noise values measured at the test day speeds would be corrected to the acoustic day reference speeds.

The FAA, in Amendments 36–3 (39 FR 43830; December 19, 1974) and 36–5 (41 FR 35053; August 19, 1976), has already incorporated this suggestion in what has become current § C36.7(f). Only one comment to the Docket addressed this proposed amendment. This commenter correctly noted that the EPA proposal was unnecessary since the FAA had already included those requirements in earlier FAA actions.

J. Approach Test Flap

The EPA proposed a change to the last sentence of paragraph (b) of § C36.9 of Appendix C of FAR Part 36 to read:

> If more than one flap setting is used to show compliance with the landing requirements in the airworthiness regulations constituting the type certification basis of the airplane one flap position less than the maximum certificated for the airplane must be used.

The current section C36.9(b) of Appendix C of FAR Part 36 reads as follows:

> The airplanes configuration must be that used in showing compliance with the landing requirements in the airworthiness regulations constituting the type certification basis of the airplane. If more than one configuration is used in showing compliance with the landing requirements in the airworthiness regulations constituting the type certification basis of the airplane, the configuration that is most critical from a noise standpoint must be used.

The EPA stated that its intent was to support an earlier recommendation submitted by the EPA and published by the FAA (40 FR 44256). That recommendation proposed amending the general flight rules of FAR Part 91 to require the use of a reduced flap setting procedure for approach and landing. After due consideration, that earlier proposal was accepted in modified form by the FAA (Amendment 91–134: 41 FR 52392; November 29, 1976).

Two comments on this proposal were received in the Docket. Both supported the recommendation. An association of U.S. commercial carriers had this comment:

"The proposal to conduct the approach noise certification at less than full landing flap, if more than one landing flap position is performance certificated, is reasonable provided there is no consequential restriction placed on the use of full flaps for normal operations. That is, full flaps must still be available under the dispatching rules as well as by pilot selection. This is not in contradiction to new FAR 91.85(c), which actually supports the proposal. The wording of the proposal could be improved to indicate the certificated setting next less than maximum."

The FAA disagrees with the docketed comments. Since the adoption of Amendment 91–134, aircraft are actually flown, in the absence of overriding safety concerns, using less than maximum flaps during normal landings. However, like all operational noise abatement rules it provides its benefit to airport communities in addition to the separate benefit accruing from the airplane manufacturer's application of noise abatement technology to the airplane itself.

The FAA has two concerns here. First, it is sometimes safer to land using maximum certificated flaps because of wind or runway conditions. For these or other safety reasons, the pilot may elect to use maximum flaps and may thereby make some additional noise. Because many airports and airport communities use Part 36 noise certification numbers in their noise abatement planning, the FAA believes it has a responsibility to continue to provide consistent information on the inherent noise characteristics of airplanes it certificates. Consistent with the original Part 36, this information should closely represent the higher noise levels that the airplane can make. The second FAA concern is the stringency of the certification tests and the noise levels measured during those tests. If a change in the certification test procedures resulted in a "reduction" in the measured noise levels, the FAA would be required either to also reduce the noise level limit correspondingly or to assess the environmental impact of relaxing the noise standards. However, since the "reductions" would not have been the result of a new or additional noise abatement technology, this illusion of an increase in stringency noise test would not actually change the noise of the airplane, how airplanes are flown, or the observed community noise levels. The lower measured noise levels would be misleading in their suggestion that the airplane has been made quieter simply because of the test methodology being employed. In some cases, the EPA recommendation would actually result in permitting higher noise levels during certification—a direct opposite of the purported purpose.

Based on the above analysis, the FAA has determined that it would not provide any noise reduction benefit to the public health and welfare to adopt the EPA proposal to conduct the approach noise certification test at less than full landing flap (rather than in the configuration most critical from a noise standpoint), if more than one landing flap position is certificated for airworthiness. Accordingly, the proposed change should not be adopted.

K. Acoustical Change

As was explained in the section on the noise level issues, acoustical changes in an airplane type generally result from an increase in the payload, range, or speed of the airplane. As a result, the airplane uses more thrust or flies lower and the noise levels measured on the ground tend to increase.

Notice No. 76–22 proposed adoption of the acoustical change provisions contained in FAA's Notice No. 75–37 (40 FR 51476; November 5, 1975) "or in the ICAO CAN/4 report or some compromise of the two." As explained earlier, the ICAO CAN/4 report was the basis for Notice No. 75–37C (41 FR 47375; October 28, 1976), which was printed in the same **Federal Register** as Notice No. 76–22. As a result, the public has been given the opportunity to comment on those additional, specific proposals which, in modified form, have already been adopted by the FAA.

Four comments were received in the Docket for Notice No. 76–22 on this issue. In each case, the commenter expressed a preference for the proposals contained in Notice No. 75–37C over 75–37 because, in part, of the need for international standardization and the belief that the Notice No. 75–37C proposals were more reasonable economically.

Having again reviewed the issues involved, the FAA concludes that the acoustical change requirements adopted in Amendments 36–7 and 36–8 were

basically sound. However, in discussing those amendments, the preambles and regulatory provisions were somewhat ambiguous and did not expressly identify which tradeoff provisions (§ C36.5) are applicable to acoustical changes of the different stages of airplanes. A confusion has developed and is compounded by a transcription error which occurred when some of the provisions adopted in Amendment 36–7 were redesignated in Amendment 36–8. As a result, a literal reading of the acoustical change regulations for the newer technology airplanes might lead one to believe that the manufacturers and modifiers of certain Stage 2 aircraft could not avail themselves of any tradeoff provision, although tradeoffs are available to both noisier Stage 2 airplanes and the quieter Stage 3 airplanes. That result was not intended and is being clarified by this amendment.

The tradeoff allowances in § C36.5 (b) and (c) of Appendix C were incorporated in the original FAR Part 36 (34 FR 18355; November 18, 1969). These allowances reflected the FAA's determination that noise exposure is cumulative in nature and that certain limited "exceedances" are acceptable if compensated by noise reductions at the one or two other measuring points. Thus, for most airplanes, Part 36 allowed exceedances of up to a total of 3 decibels at any two measuring points with those exceedances no more than 2 decibels at any one measuring point ("3/2 tradeoffs"). The one exception was paragraph (c) "5/3 tradeoffs" formula for the only four-engine airplane type that was already undergoing type certification at the time Part 36 was adopted and which otherwise would not have been subject to Part 36. Since the 5/3 tradeoffs were no longer available to any new type design airplanes at the time of Amendments 36–7 and 36–8, it was decided to eliminate the apparent access to the paragraph (c) containing the 5/3 tradeoffs and prohibit their future use during acoustical changes of those aircraft because economical technology is available to achieve the newly required noise level consistent with § 611 considerations without the use of the older, special tradeoff allowance.

Unfortunately, the resulting amendments may have left some readers uncertain whether *any* tradeoffs were available for acoustical changes of certain airplanes including those that previously could use the 5/3 tradeoffs. Further, after Amendment 36–8, it became unclear which noise level requirements apply as well as what tradeoffs (if any) might be available to other Stage 2 or Stage 3 airplanes with high bypass ratio engines. The amendments to §§ 36.7(d) and C36.5(c) clarify the intent of Amendments 36–7 and 36–8 (based on Notice Nos. 75–37, 75–37C, and 76–22) to allow all current Stage 2 airplanes to be certificated using paragraph C36.5(b) "3/2 tradeoffs," but not the paragraph C36.5(c) "5/3 tradeoffs" that were previously limited to certain airplane types and to prescribe the applicable noise level requirements for acoustical changes to Stage 3 airplanes that are not required by Part 36 (§ 36.201) to be Stage 3 airplanes. No other changes based on EPA's recommendations are being adopted at this time.

L. Supersonic Transports

The EPA recommended that in the event Part 36 noise limits are made applicable to supersonic transport (SST) airplanes, as recommended by the EPA in another proposal (Notice No. 75–15: 40 FR 14093; March 28, 1975), the amendments proposed to Appendix C in Notice No. 76–22 should also be applied to those SST airplanes. That recommendation had no limit as to time or airplane type.

On June 29, 1978, the FAA published final regulations applicable to all civil supersonic airplanes (Amendment 36–10: 43 FR 23406). In order to operate in the United States these rules require all SST's, except for Concordes which had flight time before January 1, 1980, to comply with the noise limits of Part 36 in effect on January 1, 1977 ("Stage 2 noise limits"). However, the rule also provides that the noncomplying Concordes may not be operated in the United States if their design is changed in a way that increases their noise levels.

Attendant with Amendment 36–10, the FAA published a notice of decision on the EPA's recommended regulations contained in Notice No. 75–15 (43 FR 28421; June 29, 1978), in which it postponed the final decision on applying all future noise reductions for subsonic airplanes to future SST types pending its in-depth review of EPA's recommendations in Notice No. 76–22. That postponement facilitated FAA's further in-depth review and commitment to making every possible effort to achieve the goal of full future compliance, by SST's, with the same noise levels that are applied to other turbojet airplanes.

Six comments were received on this issue. None supported the proposed application of the EPA's Stage 2 or 3 levels to supersonic airplanes. The reasons cited were both economic and technical. All reported that no technology (at any price) is known to exist to make SST's as quiet as even Stage 2 airplanes much less Stage 3 airplanes (or EPA's Stage 3 or 5 noise levels). The FAA concurs with this observation, as previously discussed in the preamble to Amendment 36–10. Further, the FAA has continued to monitor carefully both NASA and foreign research on this topic and concludes that no significant development in SST technologies has been realized that, under section 611 considerations, dictate any different regulatory decisions should be made at this time. Consequently, the FAA does not believe that an economically reasonable technology appropriate to this type of aircraft is likely to evolve in the foreseeable future. Therefore, the FAA has determined that under § 611 it should not promulgate further noise rules at this time applicable to SST's based upon Notice No. 76–22. The FAA will continue to monitor the developments in SST technology as they evolve and, when appropriate, will consider additional noise level regulations for civil supersonic aircraft.

Evaluation of Impacts

The economic and technological impacts of this amendment have been considered pursuant to section 611(d) of the Federal Aviation Act of 1958, as amended. Since this amendment only clarifies the language of previous amendments and provides additional flexibility to the applicant in choosing procedures for conducting noise tests, its regulatory and economic impacts, if any, are minor.

In deciding whether to use the detailed flight procedures already in FAR Part 36 or to seek FAA approval of a simpler or less costly equivalent procedure, the applicant is free, (within broad guidelines and subject to case by case FAA approval of the equivalency involved), to minimize manpower, equipment schedules, and paperwork costs.

Those impacts have been previously evaluated in accordance with Executive Order 11821, as amended by Executive Order 11949, and under OMB Circular A–107 and DOT Order 2050.4 then in effect. From that evaluation, it was determined that the proposals being adopted by this amendment would not significantly increase costs to the private sector, to consumers, or to Federal, State or local governments. Accordingly, the FAA concluded that the cumulative impact of this amendment would not be inflationary in nature and was not major or significant action for which an economic analysis

or impact statement was required. (An evaluation of the impacts under current directives is discussed at the end of this preamble).

Prior OMB Review Under E.O. 12291

Executive Order 12291 (46 FR 13193) requires, with certain exceptions, adherence to specific procedures in promulgating final regulations. The Executive Order exempts from compliance, to the extent necessary, any "regulation for which consideration and reconsideration under the terms of this order, would conflict with deadlines imposed by statutes or by judicial order *provided that* * * * the agency shall publish in the **Federal Register** a statement of the reasons why it is impracticable for the agency to follow the procedures of this order * * * *"

On March 11, 1981, the U.S. District Court for the District of Columbia, in effect, ordered the Administrator, not later than June 30, 1981, to prescribe regulations (as proposed by the EPA, or modifications of those proposals) or to publish a notice of decision not to prescribe further regulations in response to the unacted upon portion of the EPA's recommended regulations contained in Notice No. 76–22 (*State of Illinois, et al. v. William S. Coleman,* (DDC 1981; No. 76–1961)). Thus, there is an absolute time limit provided by the court for the FAA to comply with its order and to do so in accordance with the requirements of section 611 of the Act (including considering specified factors, providing a detailed explanation of the reasons for the regulatory decisions and consulting with the EPA and the Secretary of Transportation) as well as comply with the National Environmental Policy Act and implementing directives, the Administrative Procedures Act, and the preamble and publications requirements of 1 CFR Chapter I. The FAA has complied, within that time limit, with the procedures and reviews applicable to noise regulations under section 611 of the Act and to emergency regulations subject to judicial deadlines under Executive Order 12291 and the DOT Regulatory Policies and Procedures.

Section-by-Section Analysis

These rules amend provisions in Part 36 of the Federal Aviation Regulations (14 CFR Part 36) which contains the substantive noise limits and related noise measurement and test procedures that must be complied with for the issuance of certain type and airworthiness certificates and changes to these certificates.

1. *Acoustical Change.* Section 36.7(e)(2)(i)(A) is amended to reference the correct paragraph within § 36.7(d) containing the applicable acoustical change requirements for certain Stage 3 airplanes for which applications for acoustical change approval is made on or after October 28, 1976. The intent of this change is to execute the intended effect of the acoustical change proposal concerning the applicable noise requirements for those early Stage 3 airplanes that were not required to continue to meet the Stage 3 noise levels. (Those requirements are those that apply to similar Stage 2 airplanes with high bypass ratios.) It should be noted that the determining factors for deciding which noise level limit is applicable include the bypass ratio of the airplane engines prior to the change in type design and whether the airplane is required to be a Stage 3 airplane under certification basis (§ 36.201).

2. *Noise Level Limits.* Section 36.7(d) is amended to clarify that "3/2 tradeoffs" are also permitted for acoustical change approvals under that provision as well as in other Stage 2 and Stage 3 noise certification actions.

3. *Approved Equivalent Procedures.* Section 36.201 is amended to authorize the use of FAA approved equivalent procedures in demonstrating compliance with the flight test conditions in Appendix C of Part 36. However, only equivalents for flight test conditions in §§ C36.7 and C36.9 (not reference conditions or standards) may be approved under this amendment.

4. *Tradeoffs.* Section C36.5(c) is amended to clarify the term "prior applications" as applications for original type certificates for certain airplanes made before December 1, 1969, and applications for acoustical changes to those airplanes covered by those original type certificates where the application for approval of the acoustical change was made before October 28, 1976, and approved before the effective date of this amendment. This amendment only affects early design Part 36 airplanes powered by more than three turbojet engines with bypass ratios of two or more. The reference to the effective date of this amendment avoids any unwarranted impact on acoustical changes, if any, that may have already been approved under the previous statement of the rule and precludes any future approvals.

Adoption of the Amendment and Notice of Decision

Accordingly, the Federal Aviation Administration hereby takes the following actions in response to the recommended regulations submitted to it under section 611(c)(1) of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1431(c)(1)), by the U.S. Environmental Protection Agency which were published as Notice No. 76–22 (41 FR 47328; October 28, 1976, as corrected and supplemented at 41 FR 53807; December 6, 1976), regarding noise certificated standards for turbojet powered airplanes and large, propeller-driven airplanes:

A. Notice is hereby given in accordance with § 611(c)(1)(B) of the Federal Aviation Act of 1958, as amended, that the Federal Aviation Administration is not prescribing any new regulations or amendments to existing regulations in response to Notice No. 76–22, except for those amendments previously adopted in Amendments 36–3 (39 FR 43830; December 19, 1974); 36–5 (41 FR 35053; August 19, 1976); 36–7 (42 FR 12360; March 3, 1977); 36–8 (43 FR 8722; March 2, 1978, and 43 FR 44474; September 28, 1979); 36–9 (43 FR 8731; March 2, 1978, and 44 FR 3031; January 15, 1979); and 36–10 (43 FR 28406; June 2, 1978); and except for the further amendments adopted under item B of this action.

B. In accordance with section 611(c)(1)(A) of the Federal Aviation Act of 1958, as amended, Part 36 of the Federal Aviation Regulations (14 CFR Part 36) is amended, effective August 1, 1981, as follows:

1. By amending § 36.7 by deleting the word "and" at the end of paragraph (d)(3)(i)(A), redesignating paragraph (d)(3)(i)(B) as paragraph (d)(3)(i)(C), and adding a new paragraph (d)(3)(i)(B) to read as follows:

§ 36.7 [Amended]

(d) * * *

(3) * * *

(i) * * *

(B) The tradeoff provisions of § C36.5(b) of Appendix C of this part may be used in determining compliance under this paragraph with respect to the Stage 2 noise limit or to the Stage 3 plus 3 EPNdB noise limits, as applicable; and

* * * * * *

2. By amending § 36.7(e)(2)(i)(A) by deleting the words "paragraph (d)(2) of this section; or" and substituting for them the words "paragraph (d)(3) (i) or (ii) of this section, as appropriate; and"

§ 36.201 [Amended]

3. By amending § 36.201 by deleting the words "prescribed in Appendix C of this part" and substituting for them a comma followed by the words "and in accordance with the flight test conditions under §§ C36.7 and C36.9 (or an approved equivalent procedure), prescribed under Appendix C of this part."

PART 36—APPENDIX C [AMENDED]

4. By amending section C36.5 of Appendix C as follows:

a. By amending paragraph (b) by deleting the reference to "§ 36.7(c)(1)" of Part 36 and substituting for it a reference to "§§ 36.7(c)(1) and 36.7(d)(3)(i)(B)".

b. By amending paragraph (c) by deleting the words "For applications made before December 1, 1969," and substituting for them the words "For applications for type certificates made prior to December 1, 1969, and for applications for approval of changes in type design involving acoustical changes to airplanes covered by those certificates that are made before October 28, 1976, and approved before August 1, 1981,".

Note.—The Federal Aviation Administration has determined that this action is an exempted regulation that is not major under section 8 of Executive Order 12291. It is impracticable for the agency to follow the procedures of that Executive Order with respect to this action because it must be issued immediately to avoid a conflict with a deadline imposed by judicial order. It has been further determined that this document involves an emergency regulation under the DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979) because it is governed by a short-term judicial deadline. If it is subsequently determined that this action involves a significant regulation for which a final regulatory analysis is required, one will be prepared and placed in the regulatory docket. After it is filed, a copy of the regulatory assessment could be obtained by contacting the person identified under the caption "FOR FURTHER INFORMATION CONTACT."

Issued in Washington, D.C. on June 12, 1981.

J. Lynn Helms,

Administrator.

[FR Doc. 81-18770 Filed 6-26-81; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

14 CFR Part 150

[Docket Nos. 16279 and 18691; Adoption of Part 150]

Airport Noise Compatibility Planning; Editorial Corrections to Adoption of New Part 150

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Correction to interim final rule.

SUMMARY: On January 26, 1981, the FAA published a new Part 150 of the Federal Aviation Regulations (46 FR 8316) in which it adopted a new, interim regulation prescribing requirements for airport operators who choose to develop an airport noise compatibility planning program under the Federal program. New Part 150 implements portions of Title I of the Aviation Safety and Noise Abatement Act of 1979 (Pub. L. 96-193; 94 Stat. 50) and represents the FAA's response to recommendations for rulemaking submitted to it by the U.S. Environmental Protection Agency under section 611(c)(1) of the Federal Aviation Act of 1958, as amended. The publication of Part 150 contained inadvertent discrepancies between the titles of certain sections and the associated tables of sections of the rule. To avoid any potential confusion because of those discrepancies, this action editorially corrects those errors even though they do not affect the legal substance of the statement of the regulation.

DATES: Effective date: June 29, 1981.

Corrections effective February 28, 1981.

FOR FURTHER INFORMATION CONTACT: Mr. Richard Tedrick, Noise Policy and Regulatory Branch (AEE-110), Noise Abatement Division, Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591; telephone (202) 755-9027.

SUPPLEMENTARY INFORMATION: The amendment editorially corrects certain titles of sections and the tables of sections under new Part 150 (46 FR 8316; January 26, 1981). It corrects those titles to coincide with the titles of those sections provided in the heading of the sections of the regulations, or vice versa to achieve consistency between the two.

This action is necessary to correct the discrepancies between those two statements of each title affected and thereby avoid any potential confusion or erroneous citation of the sections involved. For those reasons, it is appropriate to make the editorial corrections even though the titles themselves are not a substantive part of the regulation. Further, since it would not be in the public interest or consistent with sound regulatory practice to delay making necessary corrections to the amendment, good cause exists for making the corrective amendments effective in less than 30 days after publication. While this corrective amendment is effective upon its publication, the corrections it makes relate back to provisions which previously became effective and which clarify the proper title and citation of the affected sections. Accordingly, the corrections are made effective as of February 28, 1981, the original effective date of Part 150.

Adoption of the Amendment

Accordingly, the tables of sections and titles under Appendix A published under Part 150 of the Federal Aviation Regulations (14 CFR Part 150) are amended, effective February 28, 1981, as follows:

PART 150, APPENDIX A [AMENDED]

1. By amending the title of § 150.21 in the table of sections under Subpart B to read as follows:

§ 150.21 Noise exposure maps and related descriptions.

2. By amending the title of § 150.35 in the table of sections under Subpart C to read as follows:

§ 150.35 Determinations on programs; publication; effectivity.

3. By amending the titles of §§ A150.101 and A150.103 in the table of sections under Appendix A, Part B, to read as follows:

§ A150.101 Noise contours and land uses.
§ A150.103 Use of computer prediction programs.

4. By amending the title of § A150.103 to read—"§ A150.103 Use of computer prediction program."

5. By amending the title of Appendix A, Part B, to read as follows:

PART B—NOISE EXPOSURE MAP DEVELOPMENT

6. By deleting the title "Subpart C—Mathematical Descriptions" in the body of Appendix A (after the text of § A150.105) and substituting for it the title:

PART C—MATHEMATICAL DESCRIPTIONS

(Secs. 307, 313(a), 601, and 611(b) and (c), Federal Aviation Act of 1958, as amended (49 U.S.C. 1348, 1354(a), 1421, and 1431(b) and (c); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)); Title I, Secs. 101, 102, 103(a), and 104(a) and (b), Aviation Safety and Noise Abatement Act of 1979 (49 U.S.C. 2101, 2102, 2103(a), and 104(a) and (b); and 49 CFR 1.47(m))

Note.—The FAA has determined that this document involves a corrective amendment which is not major under Executive Order 12291 (46 FR 13193; February 19, 1981), and not significant under the procedures and criteria under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Accordingly, because its anticipated impact is so minimal, it does not warrant preparation of a regulatory evaluation and will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

Issued in Washington, D.C., on May 21, 1981.

J. Lynn Helms,

Administrator.

[FR Doc. 81-18772 Filed 6-26-81: 8:45 am]

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